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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/627,237	07/27/2000	Sihari Adireddy	PHA 23,836	2326

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PHILIPS ELECTRONICS NORTH AMERICAN CORP.  
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EXAMINER

MERID, ARADOM B

ART UNIT	PAPER NUMBER
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2631

DATE MAILED: 11/24/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/627,237

Applicant(s)

ADIREDDY ET AL.

Examiner

Aradom B. Merid

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 07-27-2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☒ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,6 and 7. 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The information disclosure statement filed on July 27, 2000 (IDS #2) and on Sept. 28, 2001 (IDS #6) fail to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

The IDS that are mentioned above failed to provide all copies of the listed materials. Those materials that were not provided with the application are crossed out with a pencil and have not have been considered. The applicant is hereby informed to provide those materials which are missing from the application.

### ***Claim Objections***

Claims 4, 12, and 20 and the specification on page 7, lines 14-15 are objected to because of the following informalities: The claim limitation of claims 4, 12 and 20 and the specification on page 7, lines 14-15 fail to correctly disclose where the first feedback signal is generated. Both the claim limitations and the specification state "...said first feedback signal from said first feedback signal to produce a combined output". The above statement should correctly read as "...said first feedback signal from said first feedback filter to produce a combined output". Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1-5, 8-13, and 16 are rejected under 35 U.S.C 102(e) as being anticipated by Oler et al. (U.S. Patent Number: 6,031,866 of record).

Oler discloses an apparatus (or a receiver) **14** composed of an RF section **26**, which includes a conventional modulator for demodulating the received signal, a conventional synchronization circuit and an automatic gain control (AGC) amplifier(col.5 lines 37-40 and Fig. 1 ), a base equalizer **28** composed of decision feedback equalizer **32** and forward filter **34** is capable of receiving distorted symbols and generates detected symbols (see col.5 lines 43-50 and Fig. 4) , and a source **44** that generates known reverse training sequence(col.7, lines 13-15 and Fig. 1 ).

The forward filter **34** defined by forward coefficients receives distorted data and outputs data of reduced precursor intersymbol interference which implies equalized output data (col.5, lines 59-61). The base equalizer also contains a decision feedback equalizer **32** which is composed a feedback filter **40** , an adder **36** and a decision device **38** (see col, 5, lines 43-46). The feedback filter

**40** defined by feedback coefficients receives detected data and produces signals capable of reducing postcursor intersymbol interference(col.5, lines 43-52). The equalized output from the forward filter and the signal from the feedback filter are summed by the adder **36** to produce a combined output detected sequence of data . The decision device **38** whose function is to estimate and quantize data (symbols) decides on the combined output data to generate a sequence of detected symbols (col. 6, lines 5-10).

Furthermore, the reverse training sequence, which is supplied by the source **44**, is a sequence of known symbols (col.7 lines 12- 15) is operably connected with the forward filter **34** and feedback filter **40** in the base equalizer **28** via equalizer training **30** to generate reduced precursor intersymbol interference and signal capable of reducing postcursor intersymbol interference. (See col. 5 line 46 -62)

Oler also teaches in the invention about transmission channels that include radio channel, and coaxial cable channels which implies wireless and wire line channel respectively. (col. 1 lines 5 -8).

Therefore, this reference may reasonably be read to teach or describe the claim limitation of claim 1-5, 8 -13, and 16

Claim 17-22 and 23 are also rejected under 35 U.S.C. 102(e) as being anticipated by Oler et al. (U.S. Patent Number: 6,031,866 of record).

Oler as discussed in the above teaches about an apparatus (or receiver) **14** that receives data and capable of reducing or minimizing precursor

intersymbol interference as well as postcursor intersymbol interference (col. Lines 33-62).

Oler also teaches the method of receiving data (or symbols) corrupted or distorted symbols by additive noise and combination of past and future data symbols where there may be some data delay (see col. 1 lines 14-21). Oler also inherently teaches the method of generating known reverse link training sequence from a source **44** (col.8, lines 35-47) . The training sequence are transferred to the equalizer training device **30** that is operably connected to the forward filter **34** to produce data of reduced precursor intersymbol interference and feedback filter **40** in the decision feedback equalizer **28** to produce signals capable reducing postcursor intersymbol interference (col.5, lines 43-63 and col.8, lines 10- 17). The method also utilizes a summing device **36** in the decision feedback equalizer **32** to prosecute the summation of the output data from the forward filter and the signal from the feedback filter and generate a combined output (or symbols). The method further utilizes a decision device **38** in the decision feedback equalizer to estimate and quantize the combined output to generate detected sequences. (col. 6 line 5 – 15).

Thus this reference may reasonably be read to describe the claim limitations of claim 17 - 22 and 23.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 6-7 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oler et al. (U.S Patent Number: 6,031,866 of record)

Oler teaches about a source that generates known reverse training sequence **44** connected to equalizer training device **30** which is operably connected to the forward filter **34** and feedback filter **40** in the decision feedback equalizer **32** that produces a signal capable of reducing precursor and postcursor intersymbol interferences.(col. 5 lines 43 – 63). Although Oler does not show a second feedback filter connected to a symbol generator capable of reducing precursor intersymbol interference and a summation unit to sum up the output of two feedback filters.(Fig.1 and Fig.4), Oler teaches about equalizer training device **30** that functions as a filter to generate filter coefficients to the forward filter and feedback filter that reduce intersymbol interference.

By adjusting the equalizer training unit **30** to perform as a feedback filter connected to the reverse training sequence source **44** to produce reduced precursor intersymbol interference, and summing the output with the output of the feedback filter **40** by adder to generate combined signal would have been obvious to a person of ordinary skill in the art.

Claim 22 and 23 are also rejected under 35 U.S.C. 103(a) as being unpatentable over Oler et al. (U.S Patent Number: 6,031,866 of record).

Oler teaches how the reduced precursor intersymbol interference from the forward filter **34** (col.5, lines 60-61) and a signal capable of reducing postcursor intersymbol interference from the feedback filter **40** in the decision feedback equalizer **32**, which is connected to the equalizer training **30**, are generated (col.5, lines 43-57). Although Oler fails to show how a second feedback filter connected to a symbol generator is capable of reducing precursor intersymbol interference and a summation unit to sum up the output of two feedback filters.(Fig.1 and Fig.4), Oler discloses how equalizer training device **30** that functions as a filter generates filter coefficients to the forward filter and feedback filter that reduce intersymbol interference.

By adjusting the equalizer training unit **30** to perform as a feedback filter connected to the reverse training sequence source **44** to produce reduced precursor intersymbol interference, and summing the output with the output of the feedback filter **40** by adder to generate combined signal would have been obvious to a person of ordinary skill in the art.

Claim 6-7 and 14-15 are also rejected under 35 U.S.C. 103(a) as being unpatentable over Oler et al. (U.S Patent Number: 6,031,866 of record) in view of Lim (U.S. Patent Number: 8,748,674 of record).

Oler teaches about a source that generates known reverse training sequence **44** connected to equalizer training device **30** which is operably connected to the forward filter **34** and feedback filter **40** in the decision feedback equalize **32** that produces a signal capable of reducing precursor and postcursor intersymbol interferences.(col. 5 lines 43 – 63). Oler, however, does not teach



having a second feedback filter connected to a symbol generator capable of reducing precursor intersymbol interference and a summation unit to sum up the output of two feedback filters.(Fig.1 and Fig.4).

Lim describes a decision feedback equalizer (Fig. 6) having two feedback filters, first feedback filter **50** and second feedback filter **60**. Both filters are capable of generating feedback signals to reduce postcursor intersymbol interference and a summation unit **70** to add the output of the first and second feedback filters (col.4 lines 23 –67 and Fig. 6).

Replacing the equalizer training **30** (in Oler's invention) with the feedback filter **50** from Lim's invention to generate reduced precursor intersymbol interference, and summing the reduced precursor intersymbol interference with the output signals from the feedback filter **40** that reduces postcursor intersymbol interference would have been obvious to one of ordinary skill in the art at the time of invention

Thus claim 6, 7, 14 and 15 are unpatentable over the combined teachings of Oler and Lim.

Claim 22 and 23 are also rejected under 35 U.S.C. 103(a) as being unpatentable over Oler et al. (U.S Patent Number: 6,031,866 of record) in view of Lim (U.S. Patent Number: 8,748,674 of record).

Oler teaches how the reduced precursor intersymbol interference from the forward filter **34** (col.5, lines 60-61) and a signal capable of reducing postcursor intersymbol interference from the feedback filter **40** in the decision feedback equalizer **32**, which is connected to the equalizer training **30**, are

generated (col.5, lines 43-57). Oler however fails to teach having a second feedback filter connected to a symbol generator capable of reducing a postcursor intersymbol interference and a summation unit to combine the output of the two feedback filters. Lim describes how a decision feedback equalizer having two feedback filters generates combined signals capable of reducing postcursor (col.4 lines 23 –67 and Fig. 6).

Replacing the equalizer training 30 (in Oler's invention) with the feedback filter 50 from Lim's invention to generate reduced precursor intersymbol interference, and summing the reduced precursor intersymbol interference with the output signals from the feedback filter 40 that reduces postcursor intersymbol interference would have been obvious to one of ordinary skill in the art at the time of invention.

Thus claim 22 and 23 are unpatentable over the combined teachings of Oler and Lim.

### ***Conclusion***

The following prior arts have been cited when prosecuting this office action.

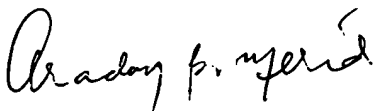
Oler et al.	U.S. Patent Number: 6,031,866
Lim, Il-Taek	U.S. Patent Number: 5,748,674
Gelfand et al.	U.S. Patent Number: 6,144,697
Cloke et al.	U.S. Patent Number: 5,822, 143
Bergmans et al.	U.S. Patent Number: 4,953,183
Smee et al.	U.S. Patent Number: 6,400,761
Lechleider, Joseph W.	U.S. Patent Number: 5,181,198
Kakura et al.	U.S. Patent Number: 5,923,226

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aradom B. Merid whose telephone number is 703-305-8953. The examiner can normally be reached on 8:00am-5:00pm (Mon. - Fri.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 703-306-3034. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

Aradom B. Merid



MOHAMMAD H. GHAYOUR  
PRIMARY EXAMINER